

## NUTRITION BULLETIN

**Routine immunization outreach is a good strategy for delivering vitamin A capsules to Cambodian children**

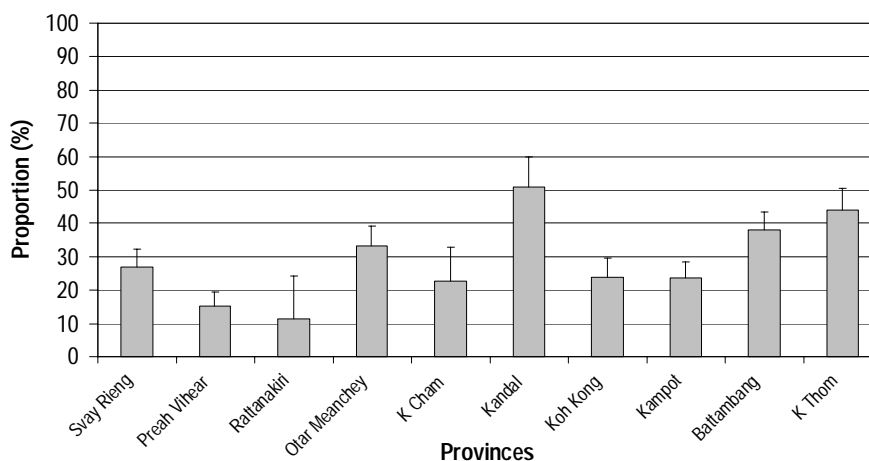
The national micronutrient survey by HKI (Apr-Aug 2000) found that coverage of the national vitamin A capsule (VAC) distribution program varies considerably, from 10-55% between provinces and from 0-100% between communes within provinces. Immunization outreach activities appear to be a good strategy for delivering VAC: VAC coverage is higher where immunization coverage is higher, and VAC coverage among older children (36-59 mo) is the same as coverage among younger children (6-11 mo). Therefore, VAC distribution through the immunization outreach activities should be continued and increased among all age groups.

**VAC coverage by province and by communes**

The Royal Government of Cambodia (RCG) has, as one of its goals, the elimination of vitamin A deficiency as a problem of public health significance by the year 2005. To achieve this target, the RCG has taken steps to distribute high dose vitamin A capsules (VACs) to children aged 6-59 months, through the following channels:

- Routine immunization outreach activities – This is carried out by health center staff who visit 10-20 villages, approximately three to four times per year, for immunization services. VACs should be taken by the outreach teams twice yearly, around the months of March and November
- Supplementary supplementation activities such as Sub-National Immunization Days (SNIDs), and
- Measles outbreak response.

**Figure 1. Vitamin A capsule coverage in March 2000 among children aged 6-59 months, by province.** Bars indicate 95% confidence intervals corrected for design effect.



VAC distribution was started in 1994. The National Micronutrient Survey found, as shown in **Figure 1**, that in March 2000, VAC coverage by province ranged from 10-55%. Since VACs are protective against childhood night blindness and other consequences of vitamin A deficiency, such as more severe morbidity and increased mortality, VAC coverage should be increased throughout the country (see *Nutrition Bulletin*, vol. 2, issue 2, November 2000).

Between communes, VAC coverage varied from 0-100%. The map on pages 4-5 shows VAC coverage in March 2000 per commune for those communes that were included in the National Micronutrient Survey. It can be seen that the performance of the National VAC Distribution Program varies widely, even within provinces. Several factors could be contributing to this and are described in more detail later.

### Immunization outreach and VAC distribution

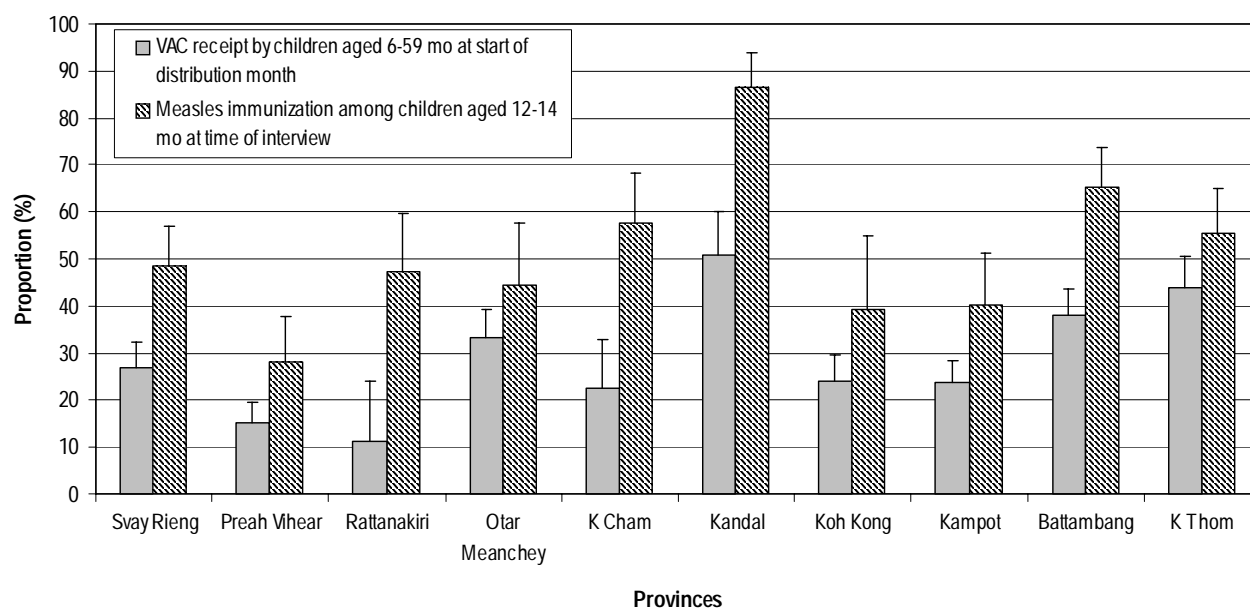
The vitamin A program in Cambodia is fairly new. In 1998, the main strategy changed from linking it with National Immunization Days, to delivering VACs through routine immunization outreach. **Figure 2** combines VAC coverage from Figure 1 with measles immunization coverage, by province. VAC coverage was calculated for all children who were eligible to receive a VAC in the March 2000 distribution

campaign (i.e. children aged 6-59 months), while coverage of measles immunization was calculated among children who were 12-14 months old at the time of the interview. That age was chosen because children should have been immunized against measles by the time they reach their first birthday. Figure 2 thus shows recent performance of immunization outreach, as indicated by coverage of measles immunization, and recent VAC coverage, as assessed for the March 2000 distribution round.

Measles immunization coverage ranged from 28-87%, and in all provinces it was higher than VAC coverage. However, in 2 of the 10 provinces (Otar Meanchey and Kampong Thom) measles immunization coverage and VAC coverage were very similar. This is a very good achievement, especially given the fact that immunization outreach only targets the younger children, while VACs need to be distributed to all children aged 6-59 months of age.

**Figure 3** shows the relationship between VAC coverage and measles immunization coverage at commune level for different age groups of children. In communes where measles immunization coverage was higher, VAC coverage was also higher. And, interestingly, VAC coverage was not different among different ages; it was the same among the youngest children aged 6-11 months, as among the oldest children aged 36-59 months. Thus, while there has been much discussion that older children might not

**Figure 2. Coverage of VAC distribution among children aged 6-59 mo in Mar 2000 and of measles immunization among children aged 12-14 mo at the time of interview in Apr-Aug 2000, by province. Bars indicate 95% confidence intervals corrected for design effect.**



be reached very well through immunization outreach activities because they are not part of the immunization target group, these data show that this was not the case in Cambodia.

But the data collected also showed that coverage among children aged 6-11 months was more similar among different communes (a small design effect was found), than the coverage among older children, particularly those aged 36-59 months (a large design effect was found). This indicates that although overall VAC coverage of younger and older children was very similar, the differences of coverage among communes were larger for older children. Thus, for young children, the immunization program and VAC distribution perform more similarly across communes than for older children.

One of the main causes of the relatively good VAC coverage among older children may be that the village chief, who is often engaged in assisting the immunization teams with community mobilization, is doing a good job in getting all preschool-aged children to come for the health services being provided by the teams. This would also explain why VAC coverage among older children varies more widely between communes than VAC coverage among younger children, because some village chiefs put more efforts into mobilizing the older children than others.

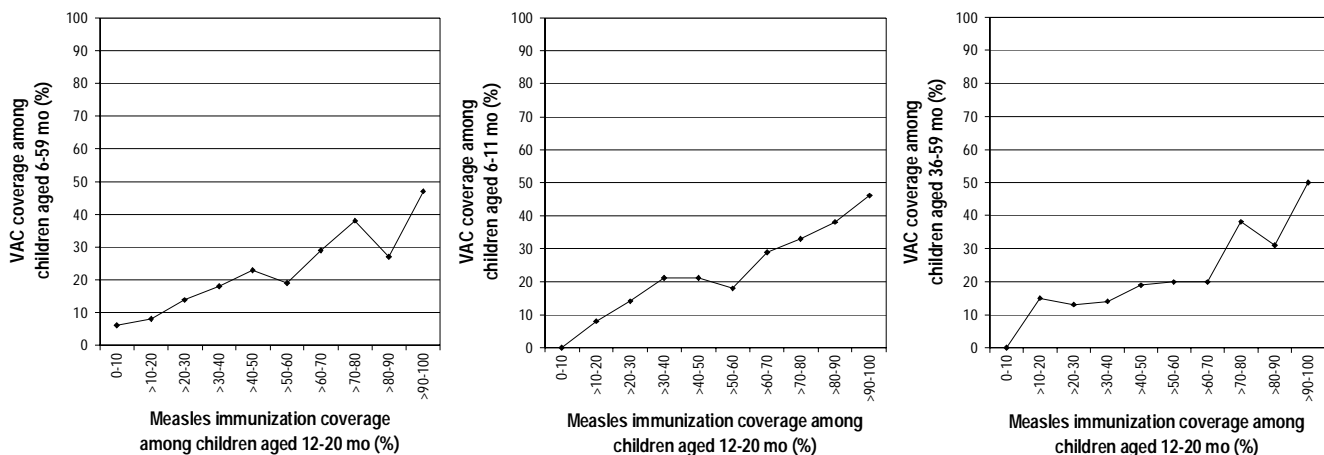
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## How the RCG/MOH national vitamin A and immunization programs are linked

The national vitamin A program was initiated in Cambodia in 1994; in 1995 National Immunization Days (NIDS) for polio began. While the NIDS were being organized, it was recognized early on that it would be good for VAC distribution to 'piggy-back' on to the NIDS. The National Vitamin A Working Group, consisting of members from the MOH/Departments of Nutrition, polio eradication and Expanded Program for Immunization (EPI), UNICEF, WHO, and HKI agreed to conduct a pilot to see how well distribution of VACs with NIDS would work. Results of the pilot were very promising and led to the RCG adopting VAC distribution via NIDS as one of the main strategies for distribution of VAC. By 1996 VAC distribution became fully integrated into NIDS.

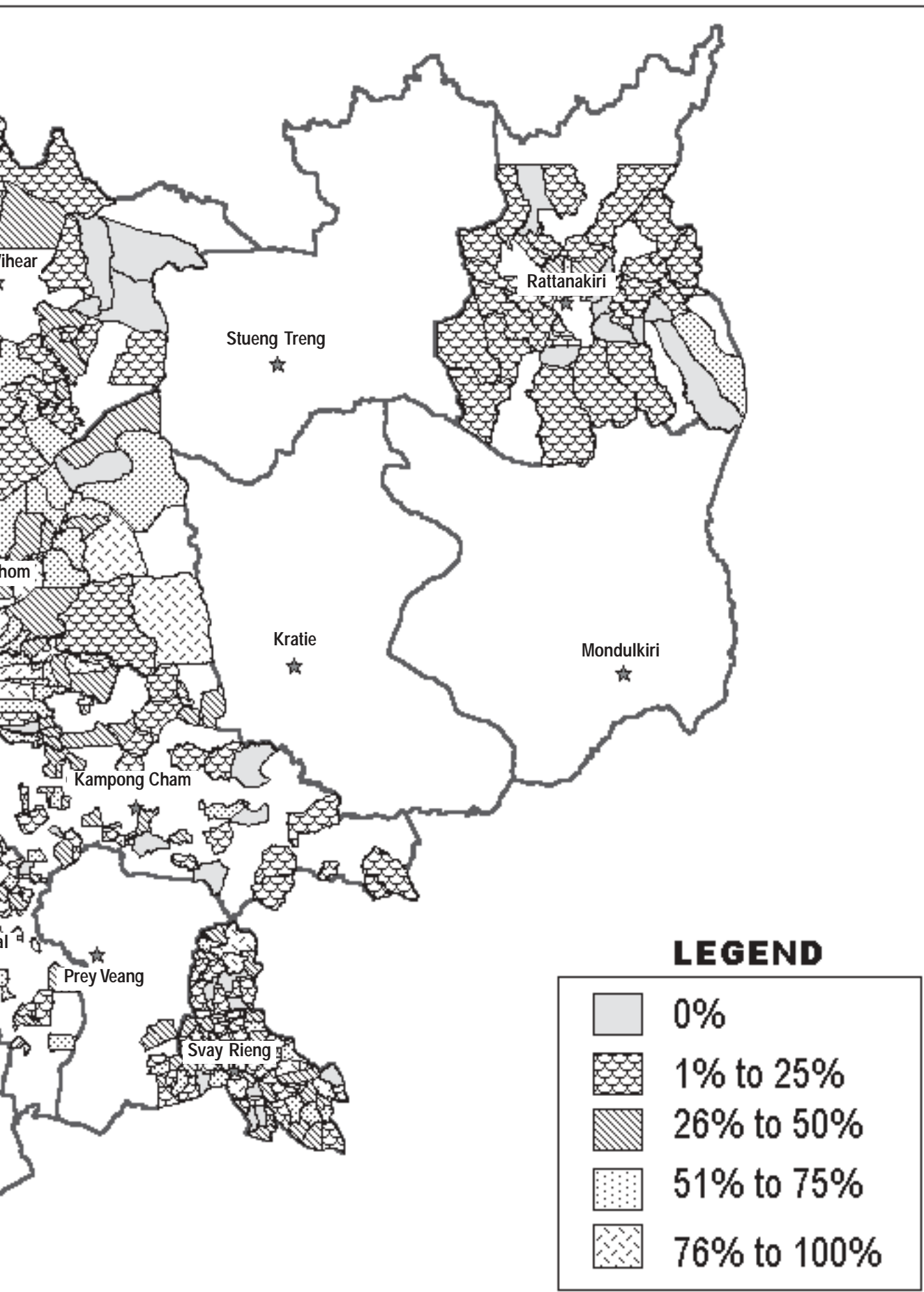
Distribution of VACs via this strategy continued until the end of 1997 after which the NIDS for polio ended. It was then decided that VACs would be distributed through routine immunization services. In 1998, VAC distribution was integrated into the National Immunization Program (NIP) and is currently being distributed twice a year to children 6-59 months of age through routine immunization outreach and through special supplemental campaigns such as SNIDS.

**Figure 3. Relationship between VAC coverage and measles immunization coverage at commune level for different age groups of children (n=500 communes).** Median VAC coverage in March 2000 at commune level by measles immunization coverage among children aged 12-20 mo at the time of the interview.



**Map: Vitamin A capsule coverage among children aged 6-59 mo old in March 2000, by commune.**  
(Map courtesy of the World Food Programme/Cambodia)







## National Vitamin A Program Assessment

### Methodology

The Cambodia National Vitamin A Program Assessment, conducted by HKI, was carried out in the same 10 provinces as the National Micronutrient Survey conducted by HKI, in an additional two provinces (Siem Reap and Preah Vihear), and in Phnom Penh. Data were collected during the months of July and August 2000. In each province, the provincial health department (PHD), 2 operational districts (ODs) and 4 health centers (HCs) were selected for semi-structured interviews in such a way that the widest possible range from poor to good program performance was covered. In addition, in-depth interviews were conducted with one or two NGOs working with the vitamin A program in these provinces. At the national level, MOH Units/Departments and UN organizations involved in the vitamin A program were selected for in-depth interviews.

The question guides were developed by HKI staff, with assistance from Cambodia's Micronutrient Technical Working Group, which consists of representatives of RCG, and national and international agencies. All question guides were developed in English and for the OD and HC levels, translated into Khmer. To ensure that translation was correct, guides were translated back into English and if necessary Khmer versions were corrected. The main topics of the interviews were vitamin A policy, VAC supply and distribution, personnel, training, supervision, reporting, and program costs.

Interviews with government and NGO representatives at national level were conducted by HKI staff at the interviewee's work place or at the HKI office, and recorded in English. Data collection at the PHD, OD, and HC levels was conducted in Khmer by 5 teams of 2 interviewers from the Ministry of Planning, MOH and HKI. The interviewers received a 5-day training. Interviews were held at the interviewee's work place, using face-to-face interview techniques and answers were recorded in Khmer.

After data collection, the interviewers tabulated the answers of interviews at the PHD, OD and HC level by topic, after which they were translated into English. Data were then analyzed by organizational level and separately for rural provinces and Phnom Penh.

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Because VACs are very protective against childhood morbidity and mortality, and because their coverage was found to range from 10-55%, coverage should be increased among all children aged 6-59 months. Also, the performance of the distribution system has to become more similar across villages.

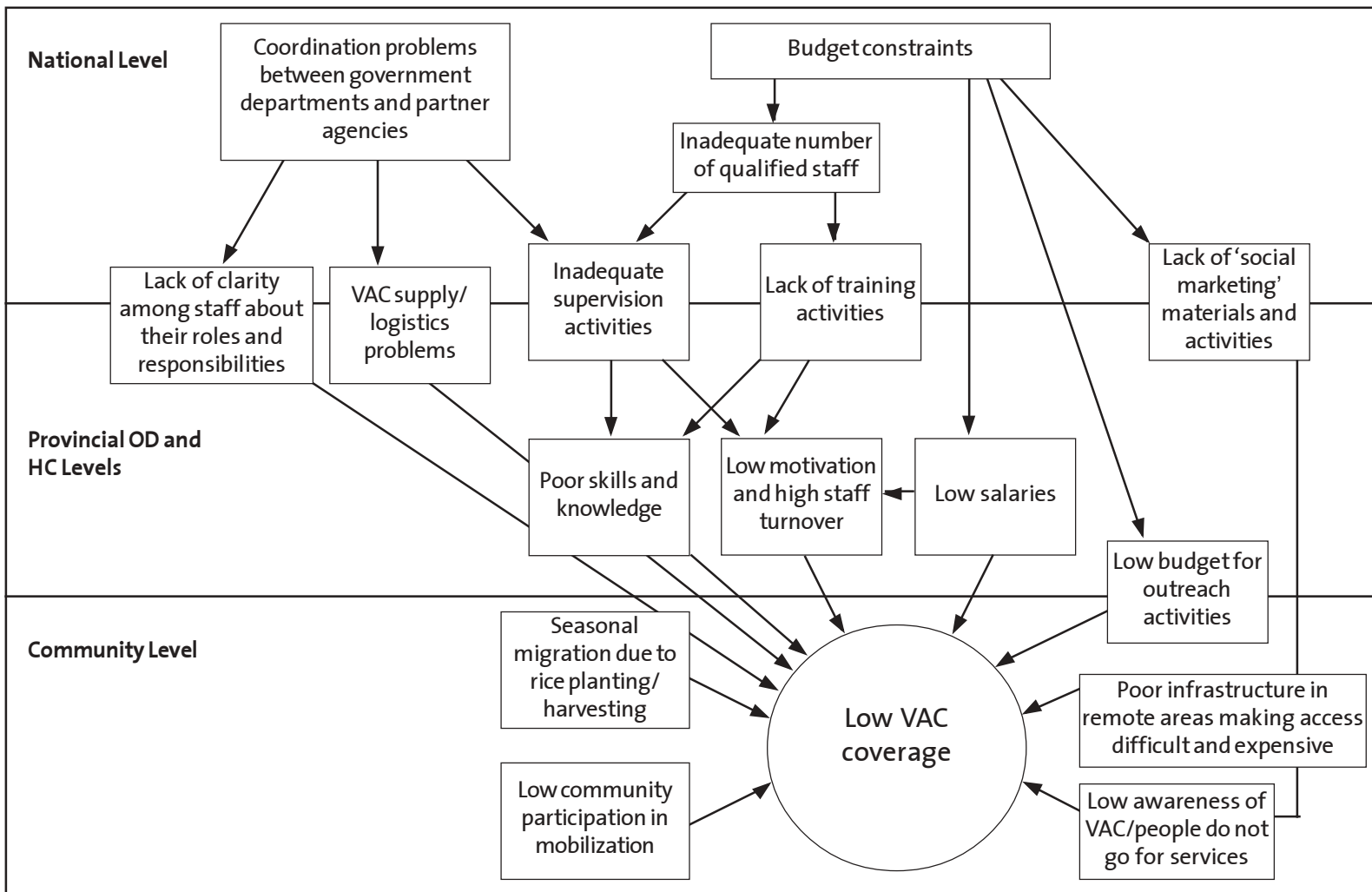
### Factors affecting VAC coverage

In order to understand how VAC coverage can be improved, HKI conducted an assessment of the National Vitamin A Capsule Distribution Program in July and August 2000. Results indicate that poor coverage is due to a range of factors at different levels of the health system. These factors are shown diagrammatically in **Figure 4**.

VAC coverage varies widely between different communes within a province, because health centers face different challenges with respect to delivery of the capsules. The more remote areas are the most difficult to reach and are often neglected due to poor infrastructure and the high costs associated with getting there, which becomes increasingly difficult during the rainy season. Also, some health centers have a large turnover of staff, in which case new staff is often unaware of the VAC distribution policy and distribution schedule. Associated with this is an often poor understanding of staff roles and responsibilities, which could also be due to insufficient coordination at the national level. It often happens that VACs are not taken for immunization outreach activities because the immunization staff think that VAC distribution is not one of their responsibilities or because the health center staff think that VACs are not meant for distribution outside the health center.

Another important underlying factor related to poor VAC coverage is budget constraints faced by the national VAC program. This affects all stages of VAC distribution, including overall planning, training, supervision, outreach activities and social marketing of VAC. In addition, health worker salaries are low, which may result in low motivation and absenteeism.

Figure 4. Factors contributing to low VAC coverage in Cambodia



## Recommendations

- Vitamin A capsule coverage among children aged 6-59 months needs to be improved. Immunization outreach activities provide a good mechanism for delivering vitamin A capsules to children of all ages and should be continued.
- The findings from this survey on VAC distribution and immunization outreach activities are clearly 'lessons without borders.' The information needs to be shared widely with other countries in Asia and Africa.
- Technical assistance is required to help translate the survey findings into a strategy and action plan to control vitamin A deficiency in Cambodia, particularly for the further development of the VAC program.
- Workshops and meetings will need to be organized and supported in order to make timely use of this information within Cambodia at the national and provincial level.

## C A M B O D I A

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The Cambodia National Micronutrient Survey was made possible through funding from the United States Agency for International Development (USAID) under the terms of Cooperative Agreement No. HRN-A-00-98-00013-00.

This publication was made possible through support by the USAID/Cambodia Mission under the terms of Award No. 442-G-00-95-00515-00. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of USAID.